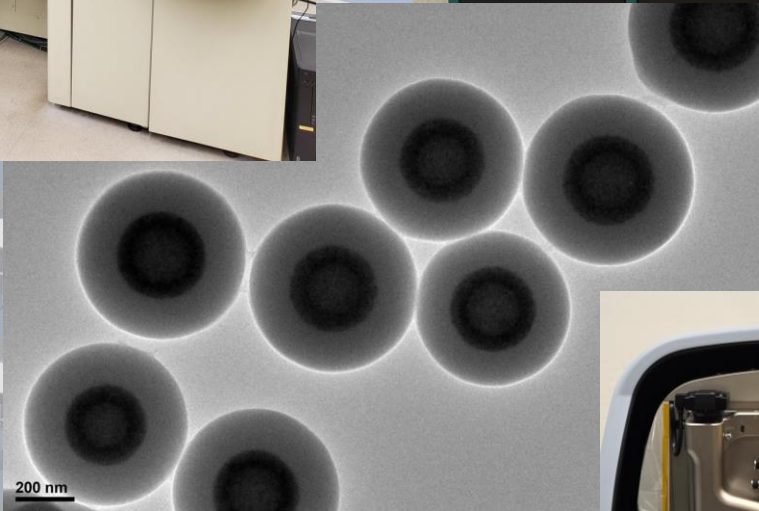
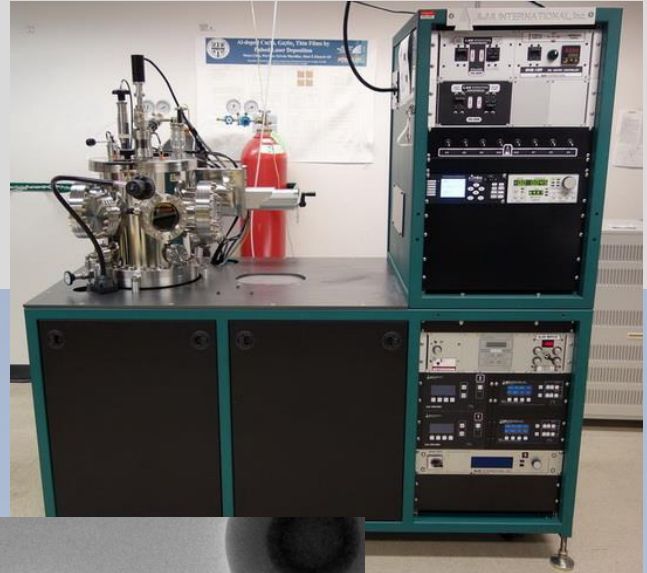


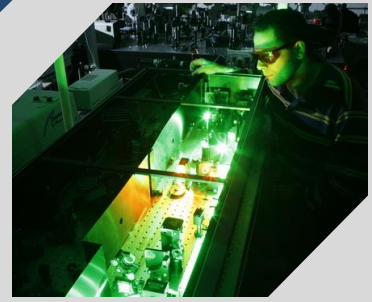


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Applied Research Center

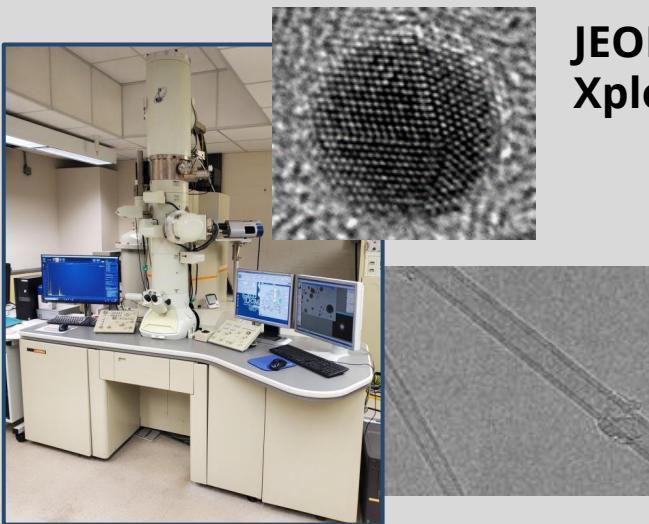


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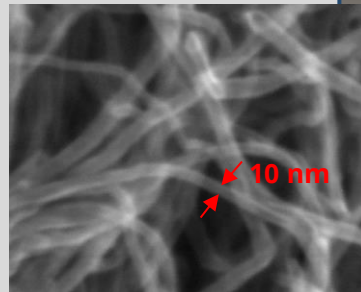
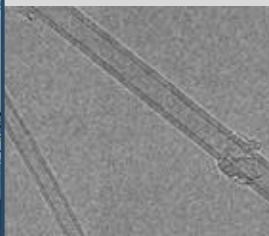
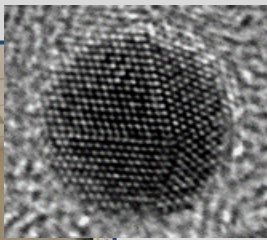
Old Dominion University's Applied Research Center (ARC) is home to an interdisciplinary team of researchers addressing scientific and technological challenges in the areas of thin films, materials analysis, laser-materials interactions, nanotechnology, thin film sensors, and laser-based measurements. The center's projects are funded by federal agencies, the Commonwealth of Virginia, and various industries and national laboratories.

Characterization Facilities



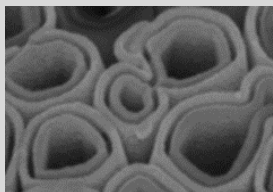
JEOL JEM-2100F HRTEM with Oxford Xplore EDS Detector

- Lattice resolution 0.1 nm
- STEM mode
- Chemical analysis



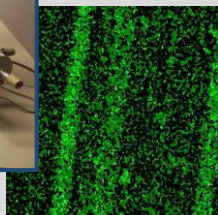
FEI Helios NanoLab 450S DualBeam FIB/SEM

- SEM resolution: 0.8 nm @ 15 kV
- Ion beam resolution: 4.5 nm @ 30 kV



JEOL JSM-6060LV SEM with Thermo Scientific UltraDry EDS Detector

- Resolution 3.5 nm
- Specimen size up to 10 cm
- Chemical analysis with EDS map





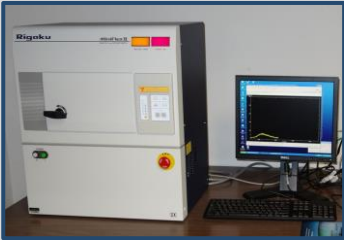
Bruker Dimension Edge AFM

- Large sample stage
- Conductive AFM
- Surface potential microscopy
- Magnetic force microscopy



Nikon Eclipse Ti Inverted Optical Microscope

- Objectives: 10x, 20x, 40x, 60x, and 100x
- Retiga 2000R color CCD camera
- Mode: transmission, reflection, dark field spectroscopy



Rigaku MiniFlex II XRD

- Phase identification
- Crystal structure
- Crystallite size and strain



PerkinElmer LAMBDA 45 UV/Vis Spectrometer

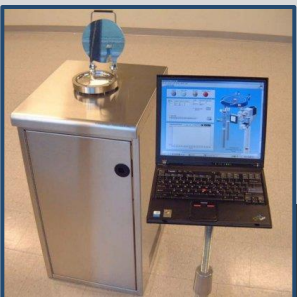
- Double beam operation
- Deuterium and Tungsten-halogen lamps
- Suitable for liquid, solid, and thin film samples

Materials Fabrication Facilities



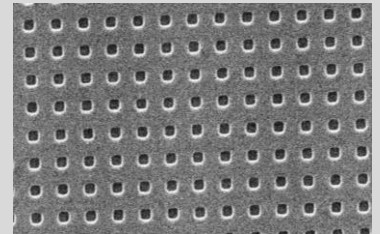
AJA Orion 5 RF/DC Sputtering System

- Three 2" magnetron sputter guns
- Two 300 W RF and one 750 W DC power supplies
- Substrates up to 4" diameter with heating up to 850 °C
- Gas: Ar, O₂

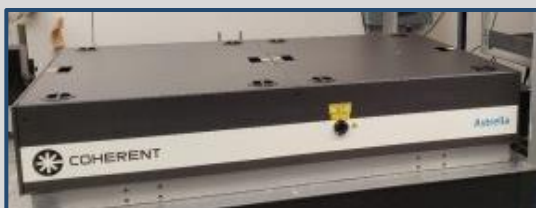
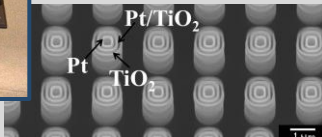


Savannah 100 ALD System

- Substrate Size: up to 200 mm
- Substrate Temperature: 25-500 °C
- Precursor Sources: Up to 6



Electron Beam Lithography Attachment to SEM



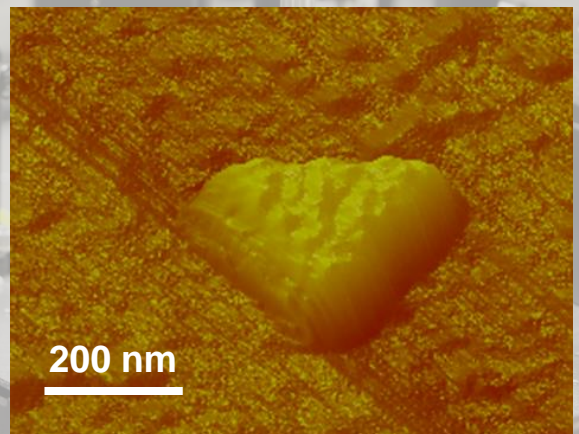
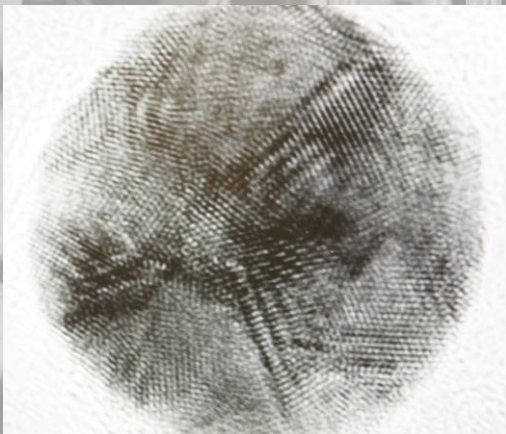
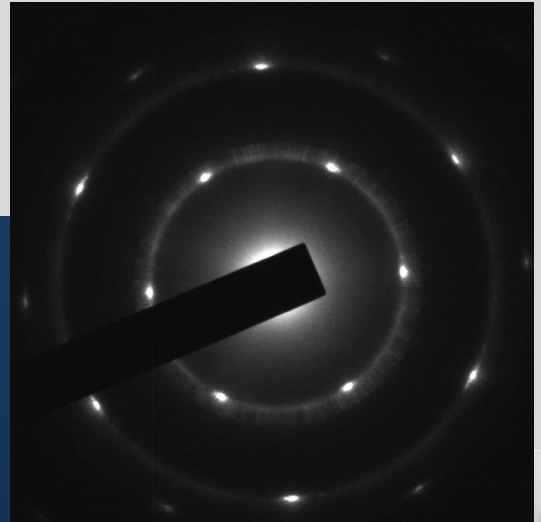
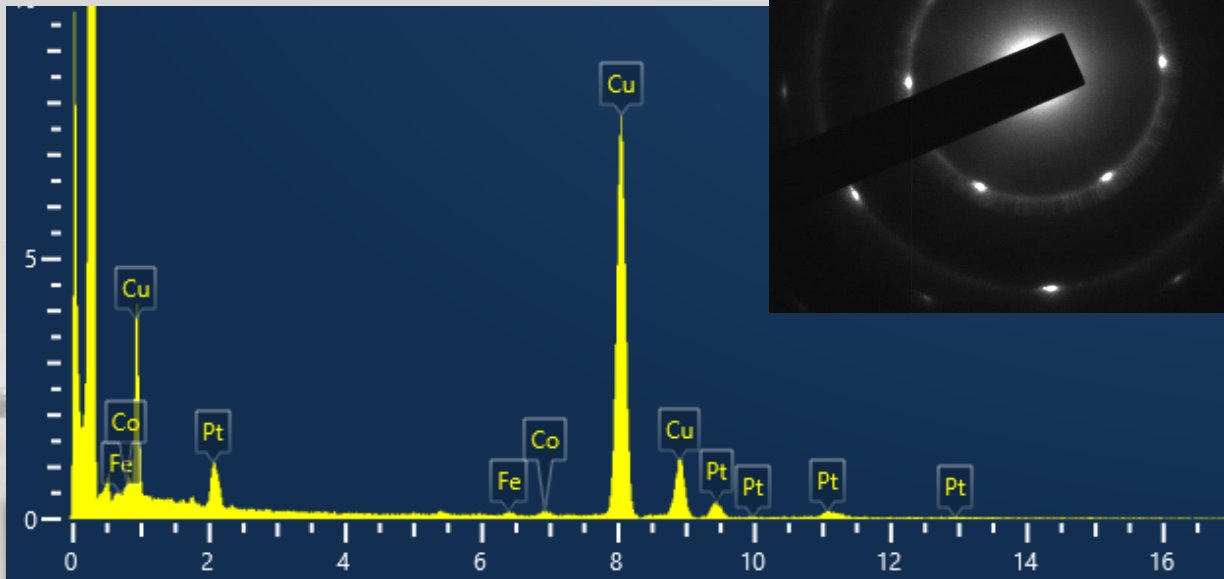
Astrella Amplified Femtosecond Ti: Sapphire Laser

- Laser precision micromachining
- >5 mJ pulse energies at <100 fs pulse width
- Wavelength: 800 nm

Additional characterization and fabrication equipment are available.
www.odu.edu/engineering/applied-research-center.



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